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2008

Nebraska Summary: S650 Massey Ferguson 8670

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SUMMARY OF OECD TEST 2498—NEBRASKA SUMMARY 650

MASSEY FERGUSON 8670 DIESEL

DYNA VT TRANSMISSION

E3 SCR ENGINE TECHNOLOGY

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1081 rpm)					
257.1 (191.7)	2200	13.73 (51.96)	0.372 (0.227)	18.73 (3.69)	
Standard Power Take-off Speed(1000 rpm)					
281.1 (209.6)	2035	14.44 (54.65)	0.358 (0.218)	19.46 (3.83)	
Maximum Power (1 hour)					
290.3 (216.5)	1850	14.40 (54.50)	0.346 (0.210)	20.16 (3.97)	
VARYING POWER AND FUEL CONSUMPTION					
257.1 (191.7)	2200	13.73 (51.96)	0.372 (0.227)	18.73 (3.69)	Air temperature
220.9 (164.7)	2224	12.14 (45.94)	0.383 (0.233)	18.20 (3.59)	70°F (21°C)
166.4 (124.1)	2234	9.56 (36.20)	0.401 (0.244)	17.41 (3.43)	Relative humidity
111.3 (83.0)	2242	7.17 (27.16)	0.449 (0.273)	15.53 (3.06)	52%
55.9 (41.7)	2252	4.90 (18.54)	0.611 (0.372)	11.42 (2.25)	Barometer
--	2260	2.69 (10.20)	--	--	29.8"Hg(101.0kPa)
--			--	--	
Maximum Torque -961 lb.-ft.(1303 Nm) at 1500 rpm					
Maximum Torque Rise -56.6%					
Torque rise at 1800 engine rpm -37%					
Power increase at 1850 engine rpm -12.9%					

DRAWBAR PERFORMANCE (Unballasted - Front Drive Engaged) FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—Turtle 7.5									
218.5 (162.9)	17490 (77.80)	4.68 (7.54)	2201	2.5	0.437 (0.266)	15.94 (3.14)	172 (78)	57 (14)	29.5 (99.9)
75% of Pull at Maximum Power—Turtle 7.5									
167.2 (124.7)	13125 (58.38)	4.78 (7.69)	2223	1.9	0.453 (0.276)	15.38 (3.03)	185 (85)	59 (15)	29.5 (99.9)
50% of Pull at Maximum Power—Turtle 7.5									
111.8 (83.4)	8725 (38.80)	4.81 (7.74)	2235	1.3	0.512 (0.311)	13.62 (2.68)	174 (79)	59 (15)	29.5 (99.9)
75% of Pull at Reduced Engine Speed—Turtle 9									
166.8 (124.4)	13115 (58.35)	4.77 (7.68)	1910	1.8	0.425 (0.259)	16.40 (3.23)	165 (74)	61 (16)	29.5 (99.8)
50% of Pull at Reduced Engine Speed—Turtle 9									
112.8 (84.1)	8745 (38.90)	4.84 (7.78)	1913	1.5	0.471 (0.286)	14.82 (2.92)	165 (74)	61 (16)	29.5 (99.8)

Location of tests: DLG - Test Centre, Technology and Farm inputs, Max-Eyth-Weg 1, D-64823 Gross-Umstadt, Germany

Dates of tests: October 2008 - January, 2009

Manufacturer: AGCO S.A. ZA n2 BP 60307, Avenue Blaise Pascal, 60026 Beauvais, France

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.838 **Fuel weight** 6.97 lbs/gal (0.8359 kg/l) **Oil SAE 10W40 API service classification** CI4 **Transmission and hydraulic lubricant** BP STOU 10W/40 **Front axle lubricant** SAE 85W90 API GL5

ENGINE: Make Sisu Diesel **Type** six cylinder vertical with turbocharger, air to air intercooler and SCR technology **Serial No.** T00767 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.370" x 5.709" (111.0 mm x 145.0 mm) **Compression ratio** 16.7 to 1 **Displacement** 513 cu in (8419 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Muffler** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: **Type** front wheel assist with duals **Serial No.** T007901 **Tread width** rear 60.0" (1525 mm) to 101.8" (2585 mm) front 60.8" (1545 mm) to 89.2" (2265 mm) **Wheelbase** 122.2" (3105 mm) **Hydraulic control system** direct engine drive **Transmission** CVT. A combination of mechanical and hydrostatic sections allow an infinite speed adjustment within the ranges noted. The transmission has two mechanical ranges. **Nominal travel speeds mph (km/h)** forward: Low range 0-17 (0-28), high range 0-25 (0-40) reverse: Low range 0-10 (0-16), high range 0-24 (0-38) **Clutch** a foot pedal controls the hydrostatic oil flow **Brakes** multiple wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2038 engine rpm or 1000 rpm at 2033 engine rpm **Unladen tractor mass** 25795 lb (11700 kg)

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged) MAXIMUM POWER AT SELECTED SPEEDS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
206.9 (154.3)	26965 (119.95)	2.88 (4.63)	2057	14.9	Turtle 6 0.486 (0.295)	14.37 (2.83)	167 (75)	50 (10)	29.5 (100.0)
240.4 (179.3)	24585 (109.36)	3.67 (5.90)	1850	7.1	Turtle 7.5 0.420 (0.256)	16.60 (3.27)	165 (74)	50 (10)	29.5 (100.0)
246.1 (183.5)	21105 (93.88)	4.37 (7.04)	1850	4.2	Turtle 9 0.410 (0.250)	17.00 (3.35)	172 (78)	50 (10)	29.5 (100.0)
247.2 (184.3)	15870 (70.60)	5.84 (9.40)	1851	2.5	Turtle 11 0.408 (0.249)	17.06 (3.36)	165 (74)	50 (10)	29.5 (100.0)
245.7 (183.2)	13665 (60.79)	6.74 (10.85)	1852	2.1	Turtle 13 0.411 (0.250)	16.95 (3.34)	163 (73)	50 (10)	29.5 (100.0)
242.2 (180.6)	11815 (52.55)	7.69 (12.37)	1850	1.8	Turtle 15 0.417 (0.254)	16.74 (3.30)	171 (77)	50 (10)	29.5 (100.0)
239.3 (178.5)	10285 (45.76)	8.72 (14.04)	1853	1.7	Turtle 17 0.422 (0.257)	16.54 (3.26)	181 (83)	50 (10)	29.5 (100.0)
232.1 (173.1)	20485 (91.12)	4.25 (6.84)	1851	3.8	Rabbit 9 0.435 (0.264)	16.05 (3.16)	160 (71)	55 (13)	29.5 (100.0)
243.1 (181.3)	15625 (69.50)	5.83 (9.39)	1851	2.2	Rabbit 11 0.414 (0.252)	16.85 (3.32)	169 (76)	55 (13)	29.5 (100.0)
245.5 (183.1)	13505 (60.08)	6.82 (10.97)	1851	2.0	Rabbit 13 0.410 (0.250)	17.00 (3.35)	171 (77)	54 (12)	29.5 (100.0)
246.1 (183.5)	11770 (52.35)	7.84 (12.62)	1852	1.5	Rabbit 15 0.410 (0.249)	17.06 (3.36)	172 (78)	54 (12)	29.5 (99.9)
244.3 (182.2)	10290 (45.77)	8.90 (14.33)	1852	1.4	Rabbit 17 0.413 (0.251)	16.90 (3.33)	172 (78)	54 (12)	29.5 (99.9)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: This tractor injects D.E.F. (Diesel exhaust fluid/Urea) into the exhaust system. This rate was measured at a maximum of 3% of the diesel fuel consumption.

NOTE 2: The performance figures on this report are the result of replacing the electronic engine control module of the Massey Ferguson 8680 with the Massey Ferguson 8670 module.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's claim of 15% power bulge. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2498**, Nebraska Summary 650, December 8, 2009.

Roger M. Hoy
Director

M.F. Kocher
V.I. Adamchuk
J.A. Smith
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB

	dB(A)
At no load in Turtle - 4.6 mph (7.5 km/h) - no load	71.0
Bystander	---

TIRES, BALLAST AND WEIGHT

	With Ballast	Without Ballast
Rear Tires - No., size, ply & psi(kPa)	Six 480/80R46;***;10(70)	Four 480/80R46;***;9(65)
Ballast - Triples (total)	2955 lb (1340 kg)	None
- Cast Iron (total)	735 lb (335 kg)	None
Front Tires - No., size, ply & psi(kPa)	Four 420/90R30;***;10(70)	Two 420/90R30;***;9(60)
Ballast - Duals (total)	1170 lb (530 kg)	None
- Cast Iron (total)	1400 lb (635 kg)	None
Height of Drawbar	19.5 in (500 mm)	19.5 in (500 mm)
Static Weight with operator - Rear	18760 lb (8510 kg)	15280 lb (6930 kg)
- Front	13460 lb (6105 kg)	10680 lb (4845 kg)
- Total	32220 lb (14615 kg)	25960 lb (11775 kg)

DRAWBAR PERFORMANCE
(Ballasted - Front Drive Engaged)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F cool- ing med	Temp.°F (°C) Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—Turtle 7.5									
215.4 (160.6)	17445 (77.59)	4.63 (7.45)	2197	2.2	0.446 (0.271)	15.63 (3.08)	160 (71)	32 (0)	29.6 (100.4)
75% of Pull at Maximum Power—Turtle 7.5									
165.6 (123.5)	13105 (58.29)	4.74 (7.63)	2222	1.7	0.471 (0.286)	14.82 (2.92)	160 (71)	34 (1)	29.7 (100.5)
50% of Pull at Maximum Power—Turtle 7.5									
111.7 (83.3)	8715 (38.76)	4.81 (7.74)	2233	1.2	0.528 (0.321)	13.20 (2.60)	145 (63)	34 (1)	29.7 (100.5)
75% of Pull at Reduced Engine Speed—Turtle 9									
165.3 (123.3)	13080 (58.19)	4.74 (7.63)	1782	1.6	0.423 (0.258)	16.48 (3.25)	140 (60)	34 (1)	29.7 (100.5)
50% of Pull at Reduced Engine Speed—Turtle 9									
112.0 (83.5)	8710 (38.75)	4.82 (7.76)	1789	1.1	0.469 (0.285)	14.87 (2.93)	142 (61)	34 (1)	29.7 (100.5)
MAXIMUM POWER AT SELECTED SPEEDS									
Turtle 5									
213.0 (158.8)	34130 (151.82)	2.34 (3.77)	1861	15.0	0.469 (0.286)	14.86 (2.93)	147 (64)	32 (0)	29.6 (100.4)
Turtle 6									
238.6 (177.9)	29050 (129.22)	3.08 (4.95)	1850	6.3	0.422 (0.257)	16.54 (3.26)	171 (77)	37 (3)	29.6 (100.2)
Turtle 7.5									
244.3 (182.2)	24950 (110.98)	3.67 (5.91)	1850	4.2	0.413 (0.251)	16.95 (3.34)	174 (79)	37 (3)	29.6 (100.2)
Turtle 9									
246.7 (184.0)	19475 (86.62)	4.75 (7.65)	1851	2.7	0.408 (0.248)	17.11 (3.37)	169 (76)	37 (3)	29.6 (100.2)
Turtle 11									
242.6 (180.9)	15675 (69.72)	5.80 (9.34)	1851	1.7	0.415 (0.253)	16.79 (3.31)	165 (74)	37 (3)	29.6 (100.2)
Turtle 13									
239.7 (178.8)	13270 (59.03)	6.77 (10.90)	1852	1.4	0.420 (0.256)	16.60 (3.27)	165 (74)	37 (3)	29.6 (100.2)
Turtle 15									
235.8 (175.9)	11345 (50.46)	7.80 (12.55)	1851	1.3	0.427 (0.260)	16.34 (3.22)	172 (78)	36 (2)	29.6 (100.2)
Turtle 17									
232.5 (173.4)	9745 (43.34)	8.95 (14.40)	1850	1.2	0.433 (0.264)	16.09 (3.17)	165 (74)	36 (2)	29.6 (100.2)
Rabbit 11									
240.2 (179.1)	15465 (68.79)	5.82 (9.37)	1852	1.9	0.419 (0.255)	16.65 (3.28)	172 (78)	37 (3)	29.6 (100.2)
Rabbit 13									
241.2 (179.9)	13265 (59.01)	6.82 (10.97)	1853	1.7	0.418 (0.254)	16.70 (3.29)	176 (80)	36 (2)	29.6 (100.2)
Rabbit 15									
240.3 (179.2)	11295 (50.25)	7.98 (12.84)	1853	1.4	0.419 (0.255)	16.65 (3.28)	174 (79)	36 (2)	29.6 (100.2)
Rabbit 17									
238.4 (177.8)	10055 (44.72)	8.89 (14.31)	1855	1.3	0.423 (0.257)	16.50 (3.25)	167 (75)	36 (2)	29.6 (100.2)

HYDRAULIC PERFORMANCE

CATEGORY: IVN

Quick Attach: No

OECD Static test

Maximum force exerted through whole range: 24590 lbs (109.4 kN)

i) Sustained pressure at compensator cutoff: 3190 psi (220 bar)
three outlet sets combined

ii) Pump delivery rate at minimum pressure and rated engine speed: 51.0 GPM (193.2 l/min)

iii) Pump delivery rate at maximum hydraulic power: 46.8 GPM (177.1 l/min)

Delivery pressure: 2770 psi (191 bar)

Power: 75.6 HP (56.4 kW)

single outlet set

ii) Pump delivery rate at minimum pressure and rated engine speed: 27.9 GPM (105.5 l/min)

iii) Pump delivery rate at maximum hydraulic power: 26.1 GPM (98.9 l/min)

Delivery pressure: 2655 psi (183 bar)

Power: 40.5 HP (30.2 kW)

HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	35.8	910
B	14.6	370
C	19.1	484
D	15.9	405
E	15.6	395
F	13.0	330
G	36.4	925
H	2.0	50
I	16.5	420
J	23.4	595
K	28.7	730
L	52.4	1330
M	29.8	757
N	42.9	1090
O	9.1	230
P	50.4	1280
Q	38.7	983
R	37.0	940

